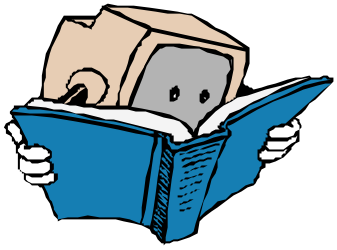
HITACHI

SM0103

HTADD3E
HTADD3EBS
HTADD3W
HTADD3WUN
HTADD3WAU



SERVICE MANUAL
MANUEL D'ENTRETIEN
WARTUNGSHANDBUCH

CAUTION:

Beforeservicing this chassis, itisimportantthat the servicetechnician read the"Safety Precautions"and"ProductSafetyNotices"inthisservicemanual.

ATTENTION:

Avantd'effectuerl'entretienduchâassis,letechniciendoitlireles«Précautionsdesécurité» etles«Noticesdesécuritéduproduit»présentésdansleprésentmanuel.

VORSICHT:

VorÖffnendesGehäuseshatderService-Ingenieurdie„Sicherheitshinweise"und„Hinweise zurProduktsicherheit"indiesemWartungshandbuchzulesen.

Data contained within this Service manual is subject to alteration for improvement.

Les données fournies dans le présent manueld'entretienpeuventfairel'objet demodificationsenvuedeperfectionner leproduit.

Die in diesem Wartungshandbuch enthaltenenSpezifikationenkönnensich zwecksVerbesserungenändern.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

AV SURROUND SYSTEM
September 2000

ENGLISH

SAFETY PRECAUTIONS

WARNING: The following precautions must be observed.

ALL PRODUCTS

Before any service is performed on the chassis an isolation transformer should be inserted between the power line and the product.

1. When replacing the chassis in the cabinet, ensure all the protective devices are put back in place.
2. When service is required, observe the original lead dressing. Extra precaution should be taken to ensure correct lead dressing in any high voltage circuitry area.
3. Many electrical and mechanical parts in HITACHI products have special safety related characteristics. These characteristics are often not evident from visual inspection, nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified by marking with a ⚠ on the schematics and the replacement parts list.
   The use of a substitute replacement component that does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list, may create electrical shock, fire, X-radiation, or other hazards.
4. Always replace original spacers and maintain lead lengths. Furthermore, where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Insulation resistance should not be less than 2M ohms at 500V DC between the main poles and any accessible metal parts.
6. No flashover or breakdown should occur during the dielectric strength test, applying 3kV AC or 4.25kV DC for two seconds between the main poles and accessible metal parts.
7. Before returning a serviced product to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock. The service technician must make sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently damaged during servicing.

CE MARK

1. HITACHI products may contain the CE mark on the rating plate indicating that the product contains parts that have been specifically approved to provide electromagnetic compatibility to designated levels.
2. When replacing any part in this product, please use only the correct part itemised in the parts list to ensure this standard is maintained, and take care to replace lead dressing to its original state, as this can have a bearing on the electromagnetic radiation/immunity.

PICTURE TUBE

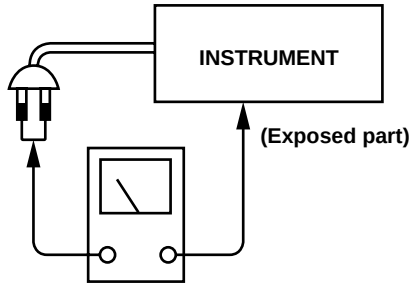
1. The line output stage can develop voltages in excess of 25kV; if the E.H.T. cap is required to be removed, discharge the anode to chassis via a high value resistor, prior to its removal from the picture tube.
2. High voltage should always be kept at the rated value of the chassis and no higher. Operating at higher voltages may cause a failure of the picture tube or high voltage supply, and also, under certain circumstances could produce X-radiation levels moderately in excess of design levels. The high voltage must not, under any circumstances, exceed 29kV on the chassis (except for projection Televisions).
3. The primary source of X-radiation in the product is the picture tube. The picture tube utilised for the above mentioned function in this chassis is specially constructed to limit X-radiation. For continued X-radiation protection, replace tube with the same type as the original HITACHI approved type
4. Keep the picture tube away from the body while handling. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled

LASERS

If the product contains a laser avoid direct exposure to the beam when the cover is open or when interlocks are defeated or have failed.

Check that exposed parts are acceptably insulated from the supply circuit before returning the repaired instrument to the customer.

- Checking method
  Measure the resistance value between the both poles of attachment cup (Power supply plug) and the exposed parts (Parts such as Knob, Cover, etc. where the customer is easy to touch.) and check that the resistance value is 500 kohms or more.



Insulation tester (DC 500V)

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with _ in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS

• AUDIO SECTION

(Power amplifier)	For (E, EBS)			For (W, WUN, WAU)
Rated output:	Front:	80 W + 80 W	(6 Ω/ohms, 20 Hz ~ 20 kHz with 0.1 % T.H.D.)	100 W + 100 W (EIAJ, 6 ohms)
	Centre:	80 W	(6 Ω/ohms, 20 Hz ~ 20 kHz with 0.1 % T.H.D.)	100 W (EIAJ, 6 ohms)
	Surround:	80 W + 80 W	(6 Ω/ohms, 20 Hz ~ 20 kHz with 0.1 % T.H.D.)	100 W + 100 W (EIAJ, 6 ohms)
SINUS power:	Front:	90 W + 90 W	(6 Ω/ohms, 1 kHz, 0.1 %)	
	Centre:	90 W	(6 Ω/ohms, 1 kHz, 0.1 %)	
	Surround:	90 W + 90 W	(6 Ω/ohms, 1 kHz, 0.1 %)	
Output terminals:	Front:	A or B	6 to 16 Ω/ohms	
		A + B	12 Ω/ohms or more	
	Center/Surround:		6 to 16 Ω/ohms	

(Analog)
- LINE input
  - Input sensitivity / input impedance: 200 mV / 47 kΩ/kohms
  - Frequency response: 10 Hz ~ 50 kHz: +1, –3 dB
  - S/N ratio: 93 dB (IHF-A weighted)
  - Total harmonic distortion: 0.1% (20 Hz ~ 20 kHz)
- PHONO input-REC OUT
  - Input sensitivity / input impedance: 2.5 mV / 47 kΩ/kohms
  - RIAA deviation: ±1 dB (20 Hz ~ 20 kHz)
  - S/N ratio: 74 dB (IHF-A weighted, with 5mV input)
  - Total harmonic distortion: 0.03% (1 kHz, 3V)
  - Rated output / Maximum output: 150 mV / 7V

• VIDEO SECTION

(Composite)
- Input/output level and impedance: 1 Vp-p, 75 Ω/ohms
- Frequency response: 5 Hz ~ 10 MHz +1, –3 dB

(S-Video)
- Input/output level and impedance: Y=1 Vp-p, C=0.286 Vp-p
- Frequency response: 5 Hz ~ 10 MHz +1, –3 dB

(Component)
- Input/output level and impedance: Y=1 Vp-p, C_B=0.7 Vp-p, C_R=0.7 Vp-p
- Frequency response: 5 Hz ~ 10 MHz +1, –3 dB

• TUNER SECTION

	[FM] (note: µV at 75Ω/ohms, 0 dBF = 1 ∞ 10^{-15}W)	[AM]
Receiving range:	87.50 MHz ~ 108.00 MHz (0.05 MHz step)	522 kHz ~ 1611 kHz (9 kHz step) (E, EBS) 522 kHz ~ 1611kHz (9 kHz step), 520 ~ 1710 kHz (10 kHz step) (W, WUN,WAU)
Usable sensitivity:	2.0 µV (17.2 dBf)	600 µV
50 dB quieting sensitivity:	STEREO	23µV (38.5 dBf)
S/N ratio:	MONO	80 dB (IHF-A weighted)
	STEREO	75 dB (IHF-A weighted)
Total harmonic distortion:	MONO	0.2% (1kHz)
	STEREO	0.4% (1kHz)

• GENERAL

- Power supply: AC 230V, 50 Hz (E,EBS), AC 110 ~ 127V/220 ~ 240V, 50/60 Hz (W, WUN,WAU)
- Power consumption: 180 W (Standby mode = 1.5W)
- Maximum external dimensions: 434 (W) ∞ 144 (H) ∞ 320 (D) mm
- Weight: 8.1 kg

• REMOTE CONTROL UNIT (RB-DD1S)

- Batteries: R6P/AA Type (two batteries)
- External dimensions: 54 (W) ∞ 172 (H) ∞ 27.2 (D) mm
- Weight: 100 g (including batteries)

• Accessory supplied: Operating instructions, Remote control unit (RB-DD1S), R6P/AA batteries, AM loop antenna and FM indoor antenna

* For purposes of improvement, specifications and design are subject to change without notice.

SERVICE POINTS

1. Removal of Top Cover
   (a) Remove 2 screws 1 from each side.
   (b) Remove 4 screws 2 from the rear plate.

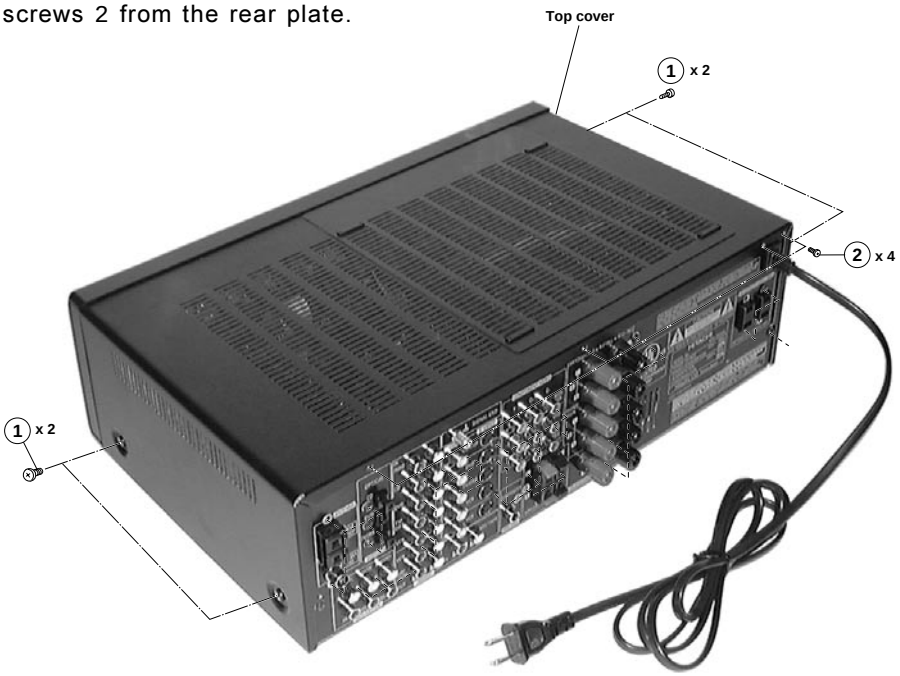


Fig. 1

2. Removal of Rear Plate
   (a) Remove 28 screws 3 and 1 screw 4 from the rear plate.
   (b) Remove 5 screws - from the Bottom Chassis.

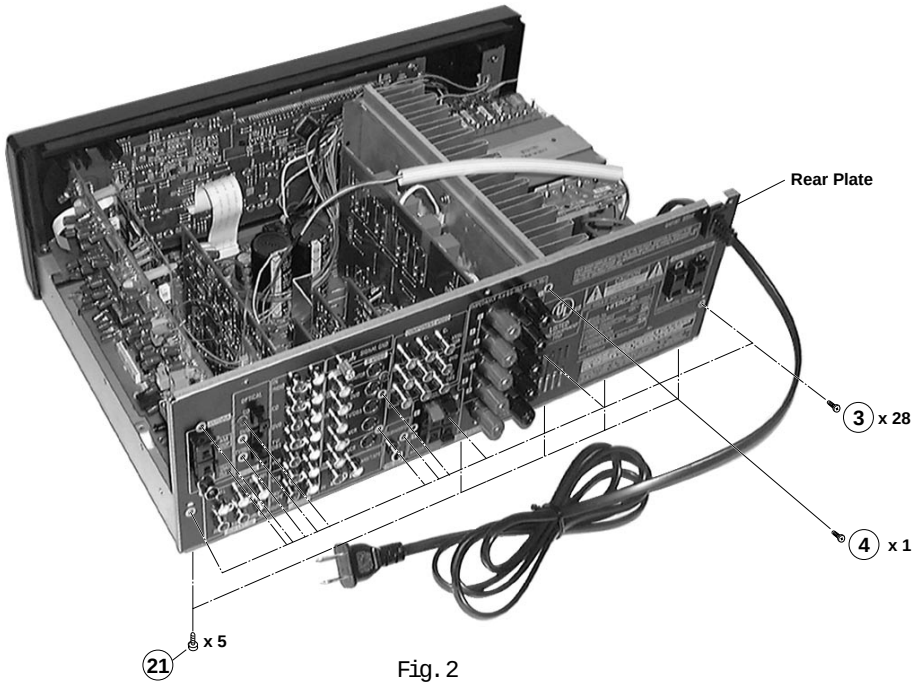


Fig. 2

3. Removal of Tuner & DSP PWB board
   (a) Remove the Push Rivet from the Holder (Front) & Holder (Back) then remove the flat cable Z at the Tuner PWB.
   (b) Remove 1 screw + to detech the shield plate from the bottom chassis.
   (c) Gently pull the Tuner & DSP PWB board upwards to detach its connectors A, B, C, D, E & F from Main PWB board.

   Removal of Audio PWB board
   (a) Gently pull the Audio PWB board upwards to detach its 4 connectors H, I, J & K from Main PWB board.

   Removal of S Video/Composit PWB board
   (a) Gently pull the Composit and S Video PWB board upwards to detach its 2 connectors L & M from Main PWB board.

   Removal of Components PWB board
   (a) Gently pull the Components PWB board upwards to detach its connector N from Main PWB board.

   Removal of Relay PWB board
   (a) Gently pull the Relay PWB board upwards to detach its 3 connectors O, P & Q from Main PWB board.

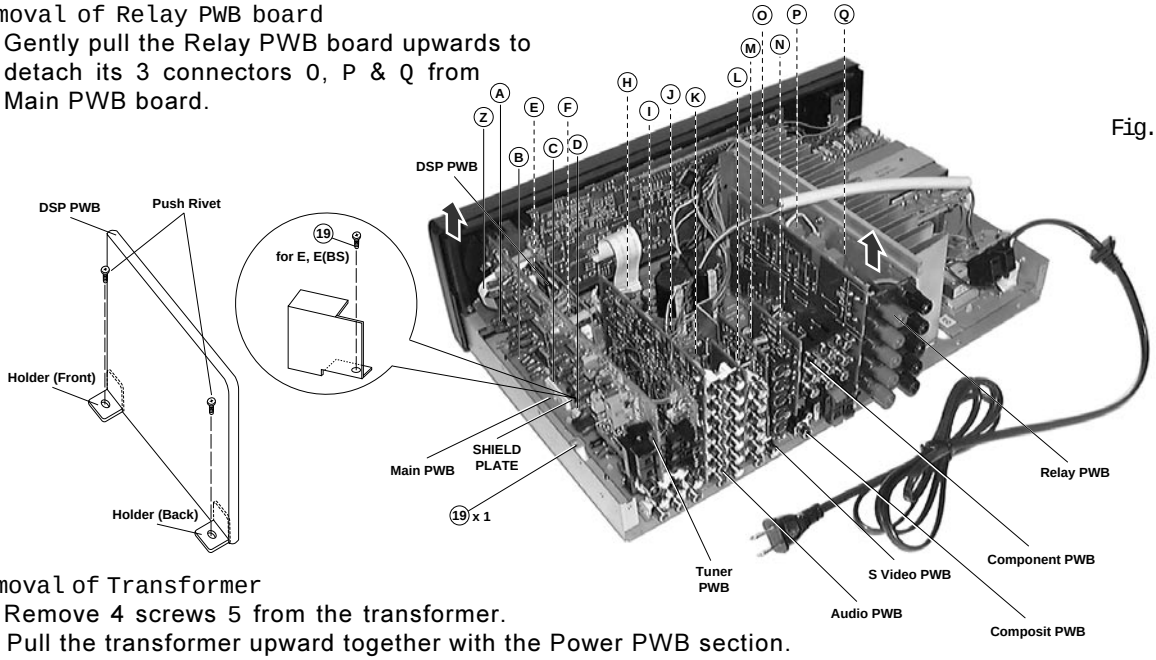


Fig. 3

4. Removal of Transformer
   (a) Remove 4 screws 5 from the transformer.
   (b) Pull the transformer upward together with the Power PWB section.

   Removal of Power PWB board
   (a) Remove 1 screw 6 from the Botton chassis at the side.
   (b) Release the Power PWB board from its 3 holding claws (PWB support) and gently pull the board free.

   Removal of Main PWB board
   (a) Detach Flat Cable from FL PWB Board.
   (b) Remove 4 screws 7 to release the Power IC from the heat-sink.
   (c) Remove 3 screws , to release the bracket from the heat-sink.
   (d) Remove 1 screw 8 to release the Component from the heat-sink.

   Removal of Heat-Sink
   (a) Invert the Botton Chassis, remove 2 screws 9 connect to the heat-sink (Fig 5).

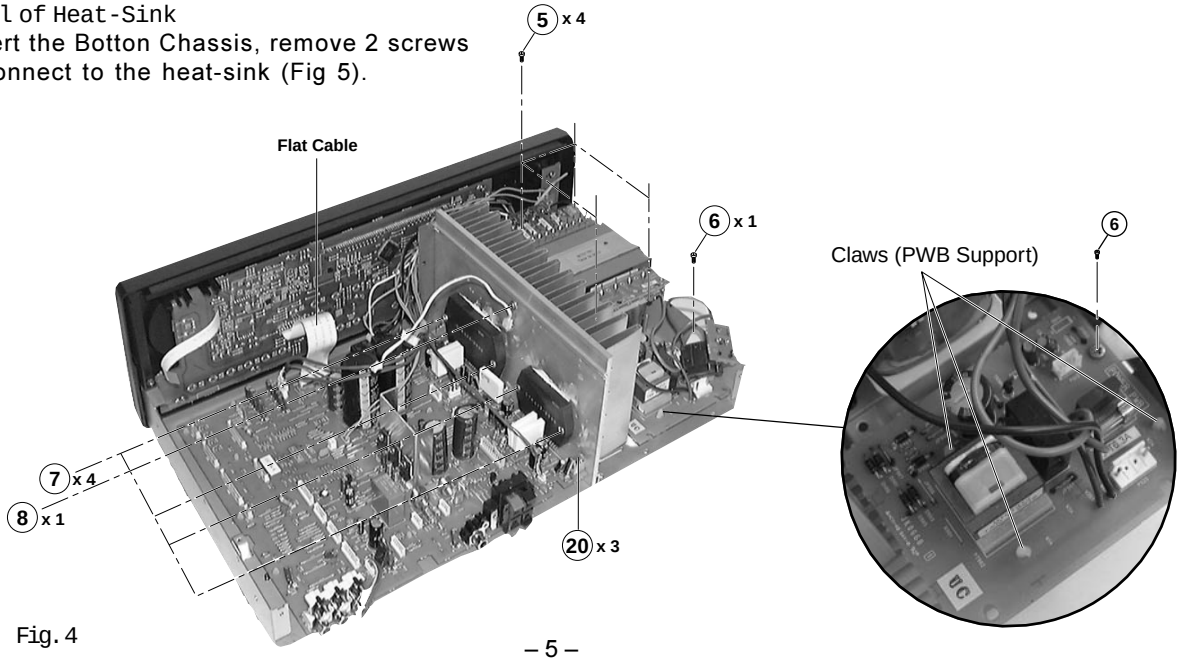


Fig. 4

5. Removal of Front Panel
   (a) Invert the Bottom Chassis and remove 4 screws !.
   (b) Remove the Master Vol. & Bass/Treble knob before remove the Front panel.

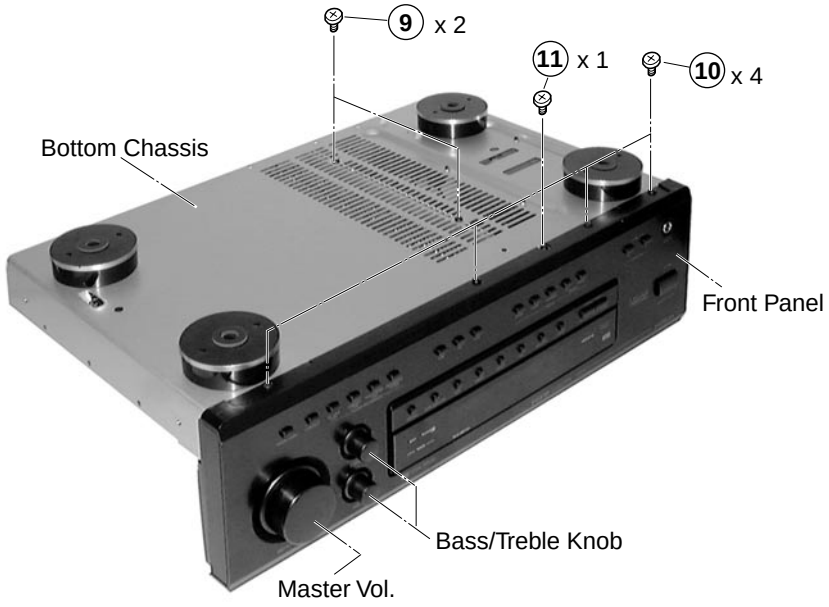


Fig. 5

6. Removal of Inner Panel, Power Switch, Phone Jack & FL board.
   (a) Release the inner panel from the bottom chassis by remove 1 screw " (Fig 5) and 2 screws #.
   (b) Remove 11 screws $ and 3 nuts to release the FL board.
   (c) Remove 2 screws % to release the Power switch.
   (d) Remove 2 screws & to release the Phone Jack.

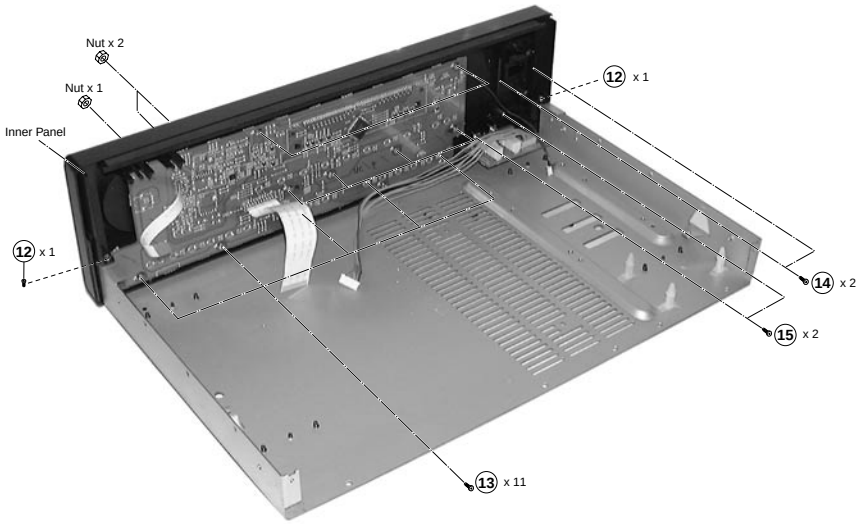


Fig. 6

7. Removal of Foot
   (a) Remove 4 screws (to remove foot.

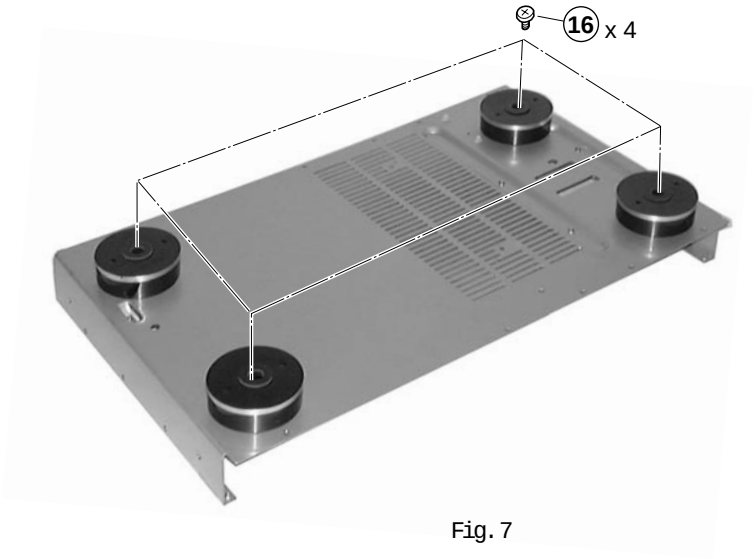
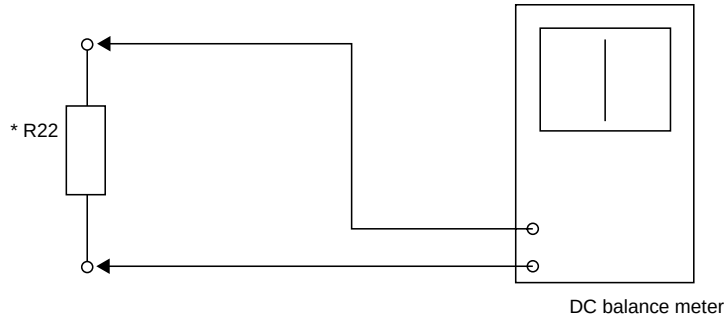


Fig. 7

ADJUSTMENTS

1) FM Discriminator
Measuring instrument and condition.

Input terminal	Output terminal	Measuring instrument	Frequency	Adjust	Reading
FM antenna 1kHz, 60dBu, 22.5kHz dev.	* R22	DC balance meter	98.1 MHz	T4	0±30mV



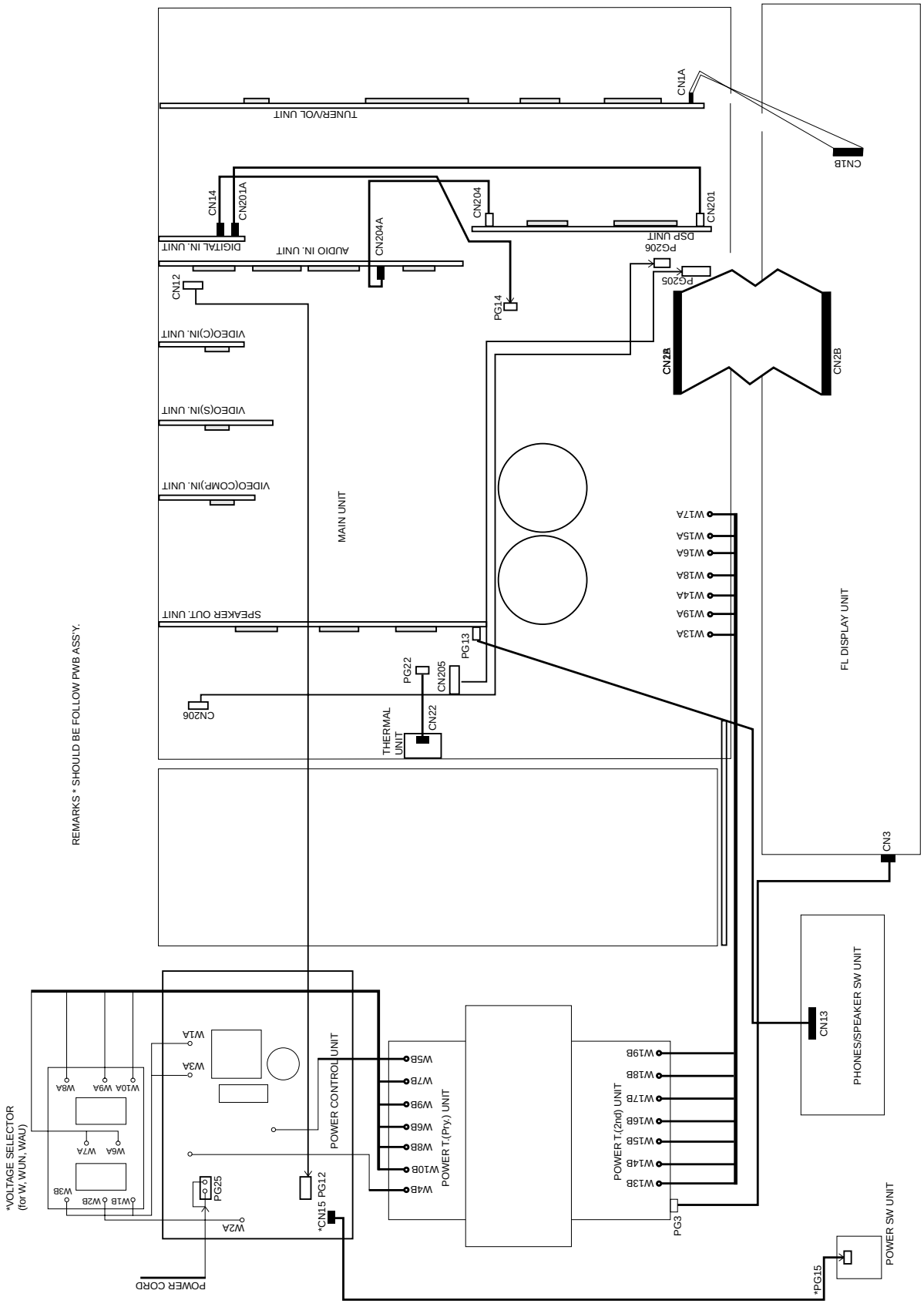
2) Voltage of covering (Reference)

Band	Destination	Frequency	Specification		Note
			Limit(V)	Average(V)	
FM	E/EBS (50kHz step)	87.50MHz	1.3-3.7	2.4	
		108.00MHz	6.0-9.0	7.5	
	W/WUN/WAU (50kHz step)	87.50MHz	1.3-3.7	2.4	
		108.00MHz	6.0-9.0	7.5	
AM	E/EBS (9kHz step)	522kHz	0.9-1.2	1.1	
		1,611kHz	6.0-9.0	7.5	
	W/WUN/WAU (9kHz step)	522kHz	0.9-1.2	1.1	
		1,611kHz	6.0-9.0	7.5	

3) Tuning level (dB) adjusment
Input – FM antenna, 1 KHz, 26 dBμV, 75 KHz
Adjust – VR1
Limit – 26±2dB

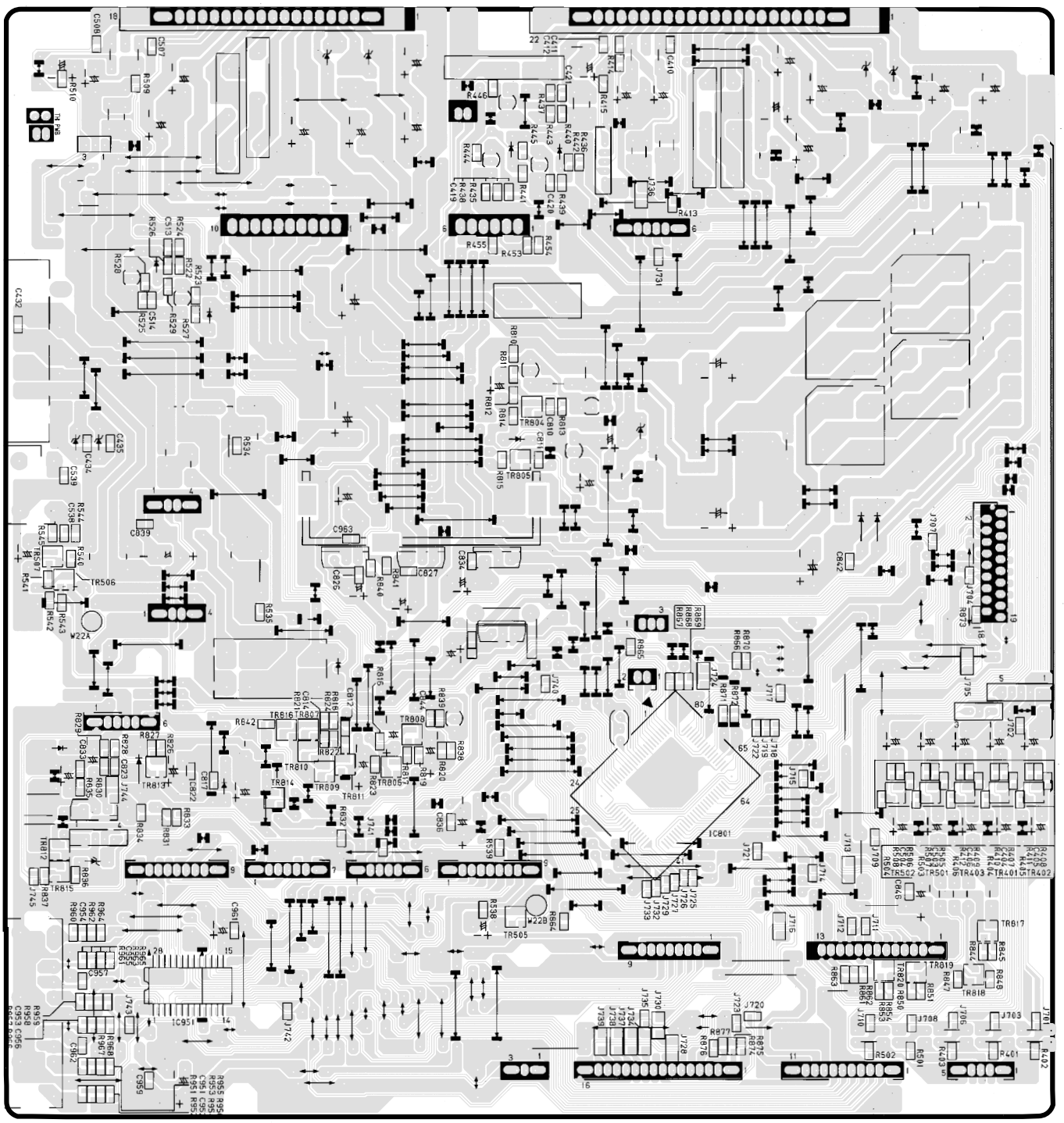
(NOTE) Adjust VRI until "Tuned" Indicator light on.

WIRING DIAGRAM



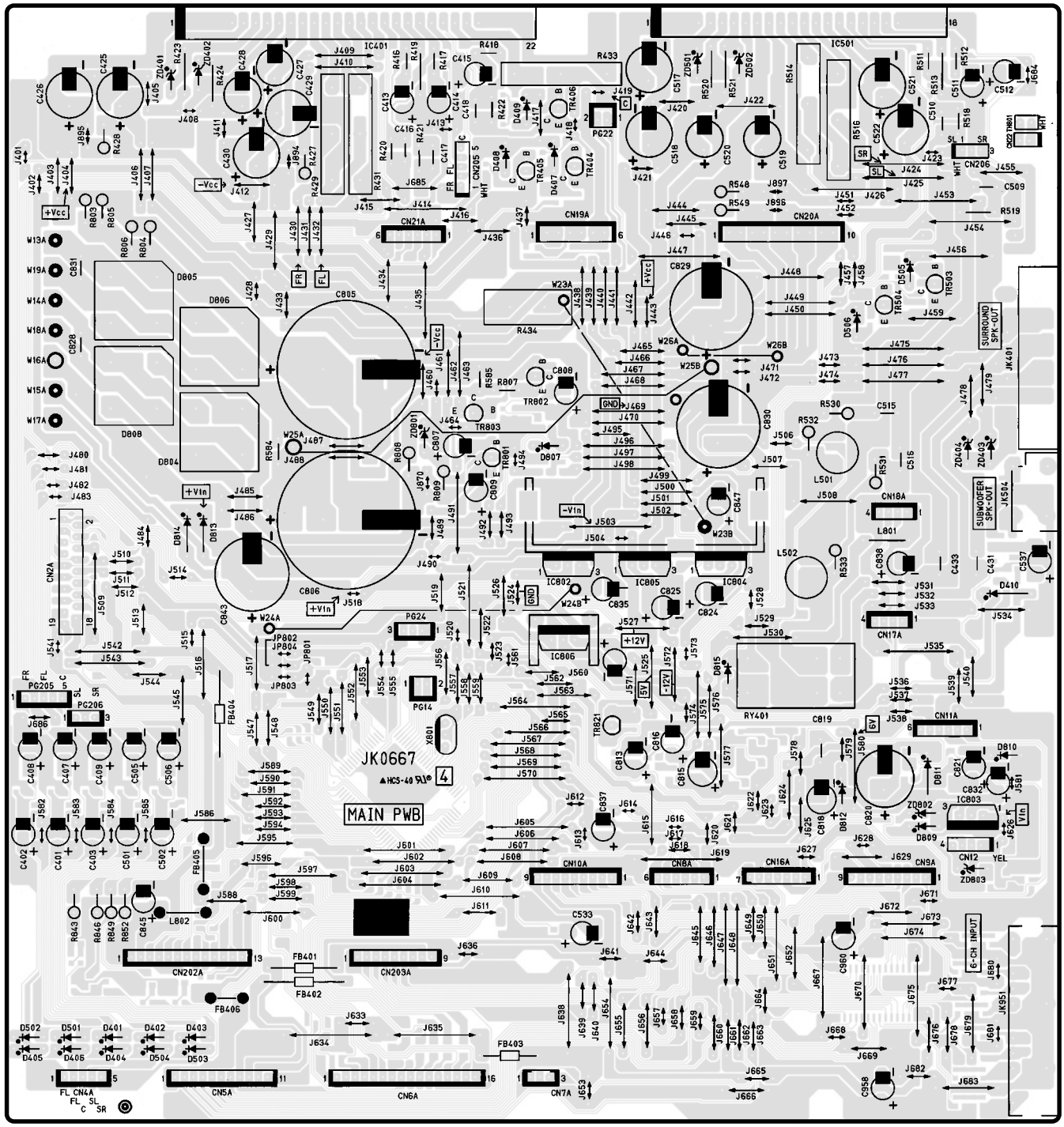
PRINTED WIRING BOARD

Soldering Side



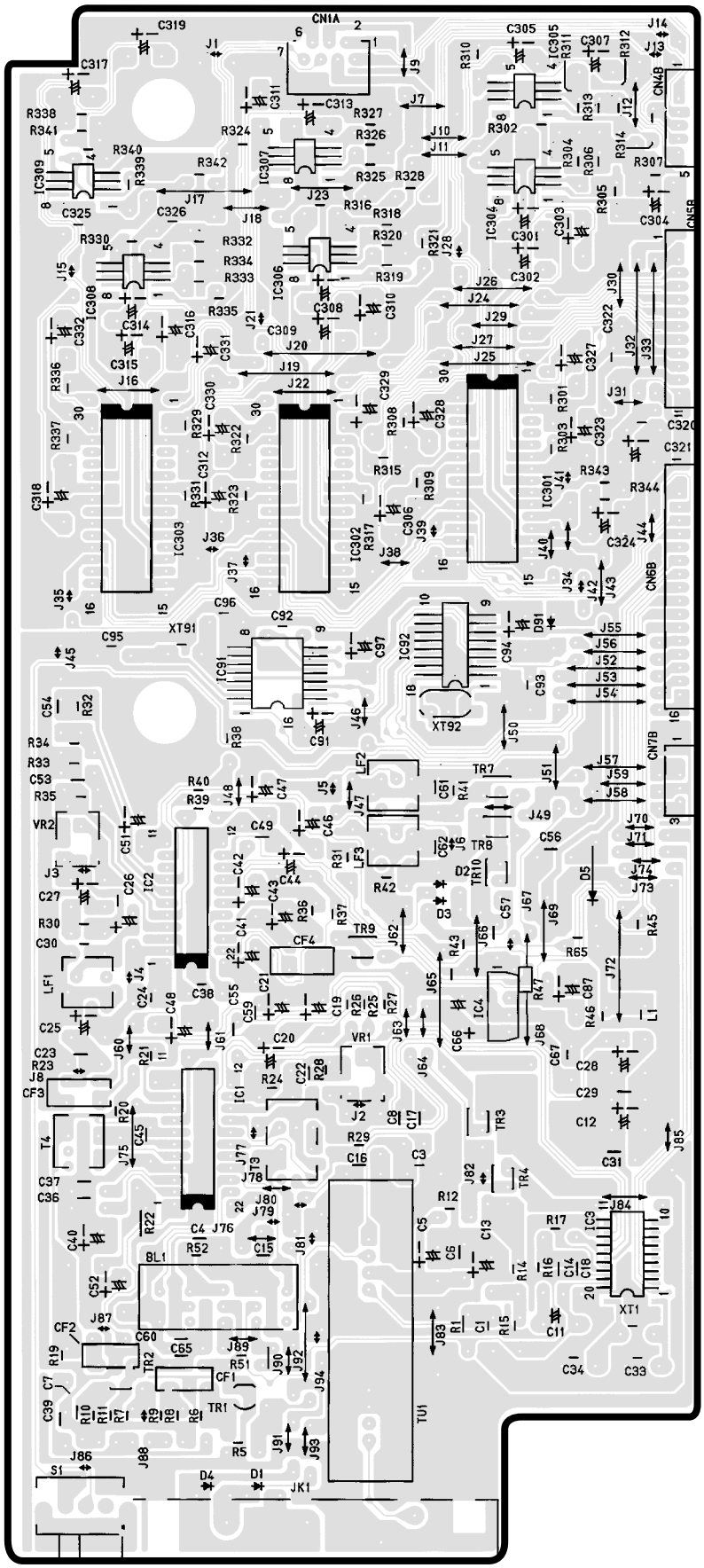
MAIN PWB

Component Side



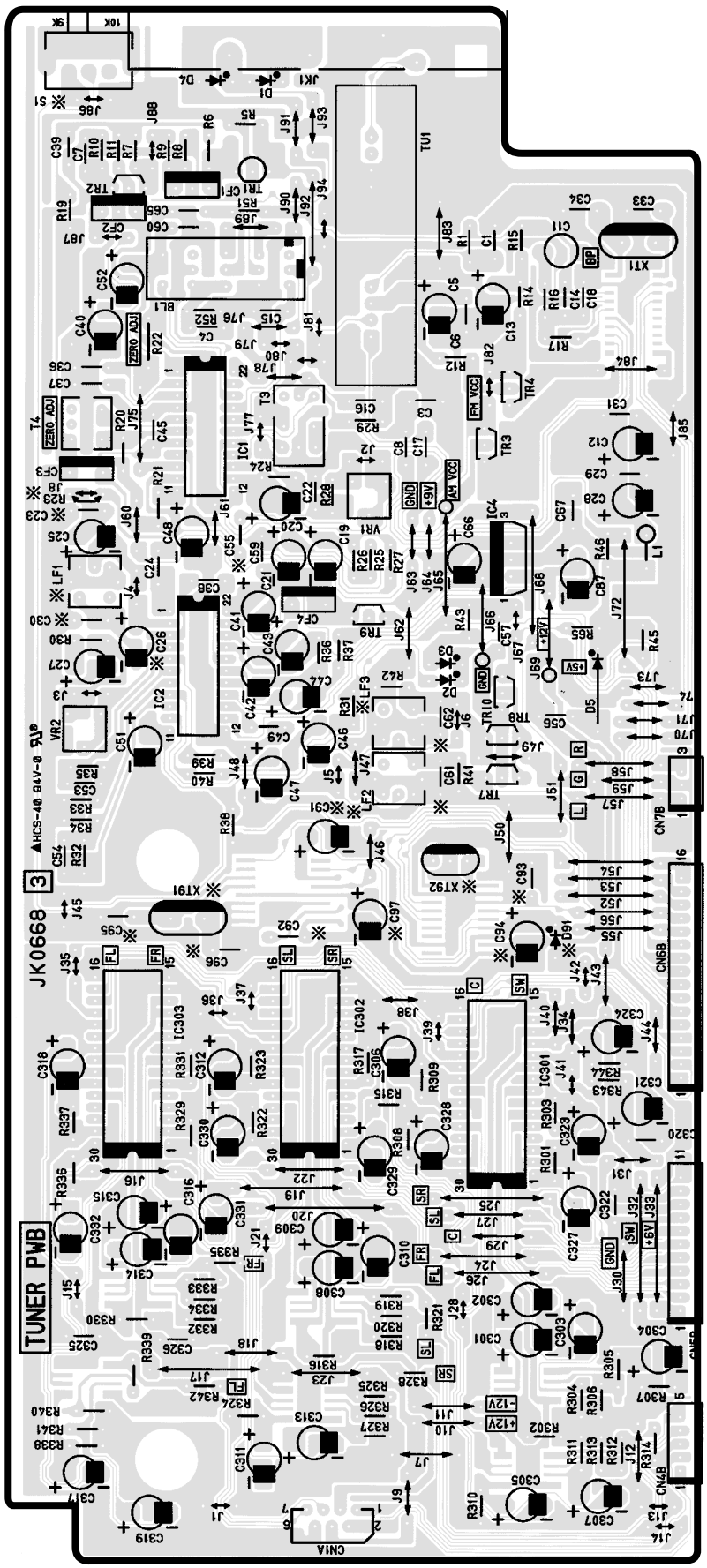
MAIN PWB

Soldering Side



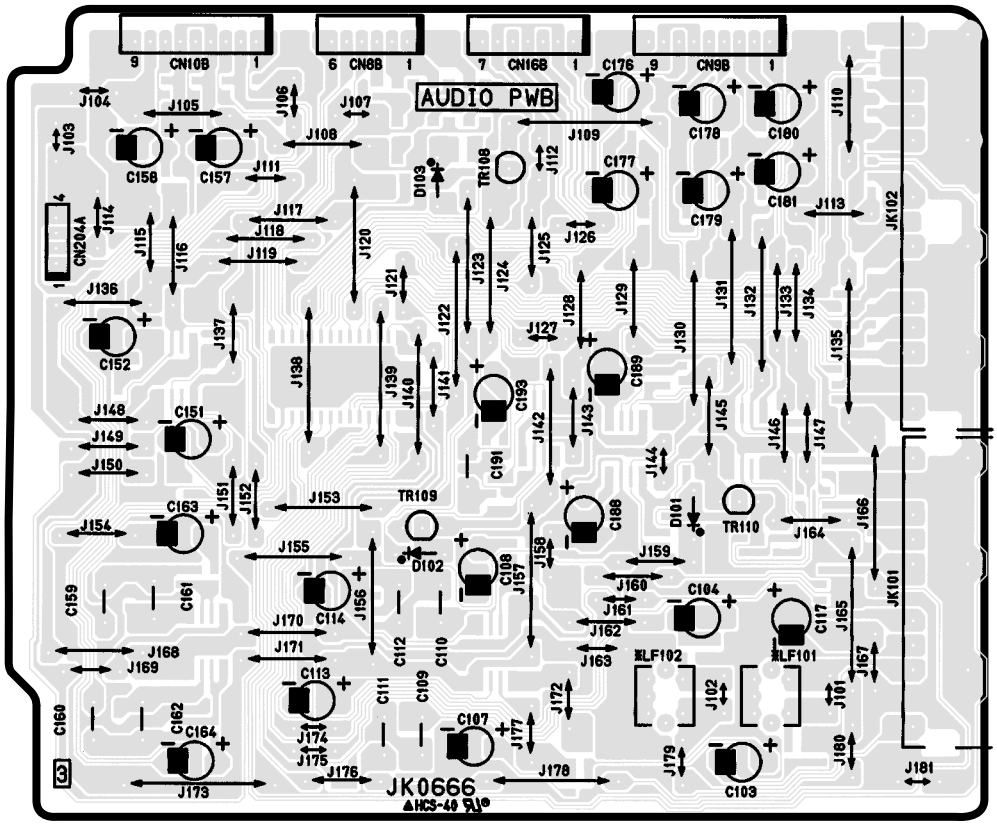
Tuner PWB

Component Side

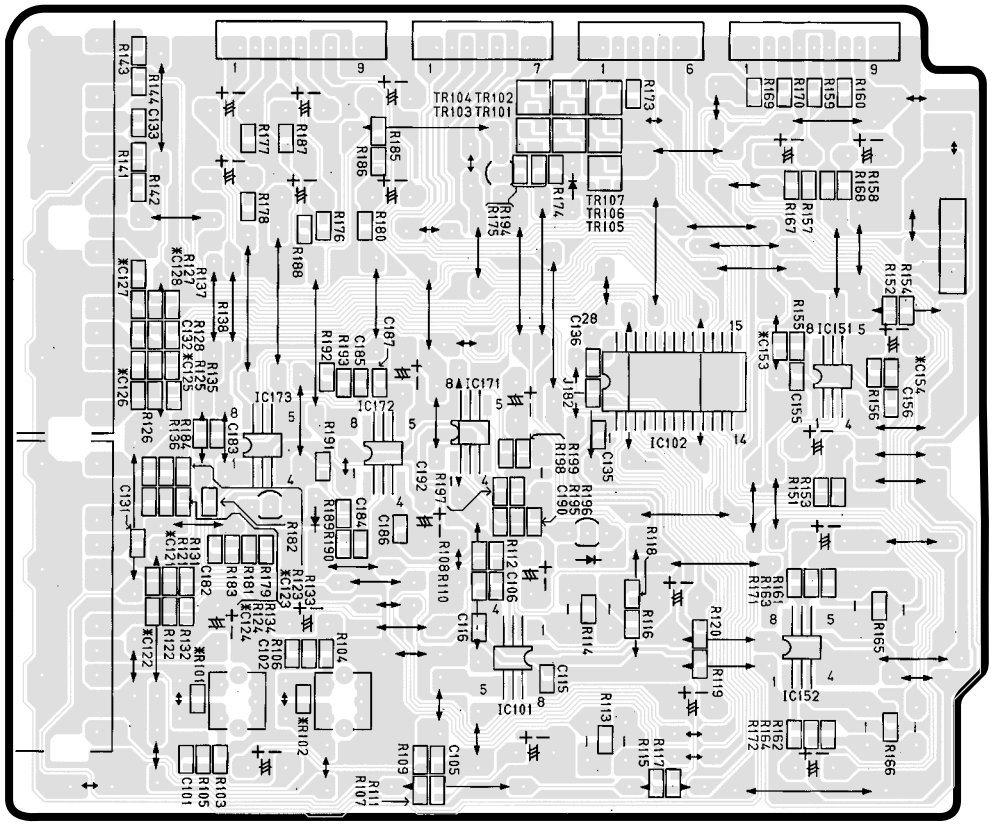


Tuner PWB

Component Side

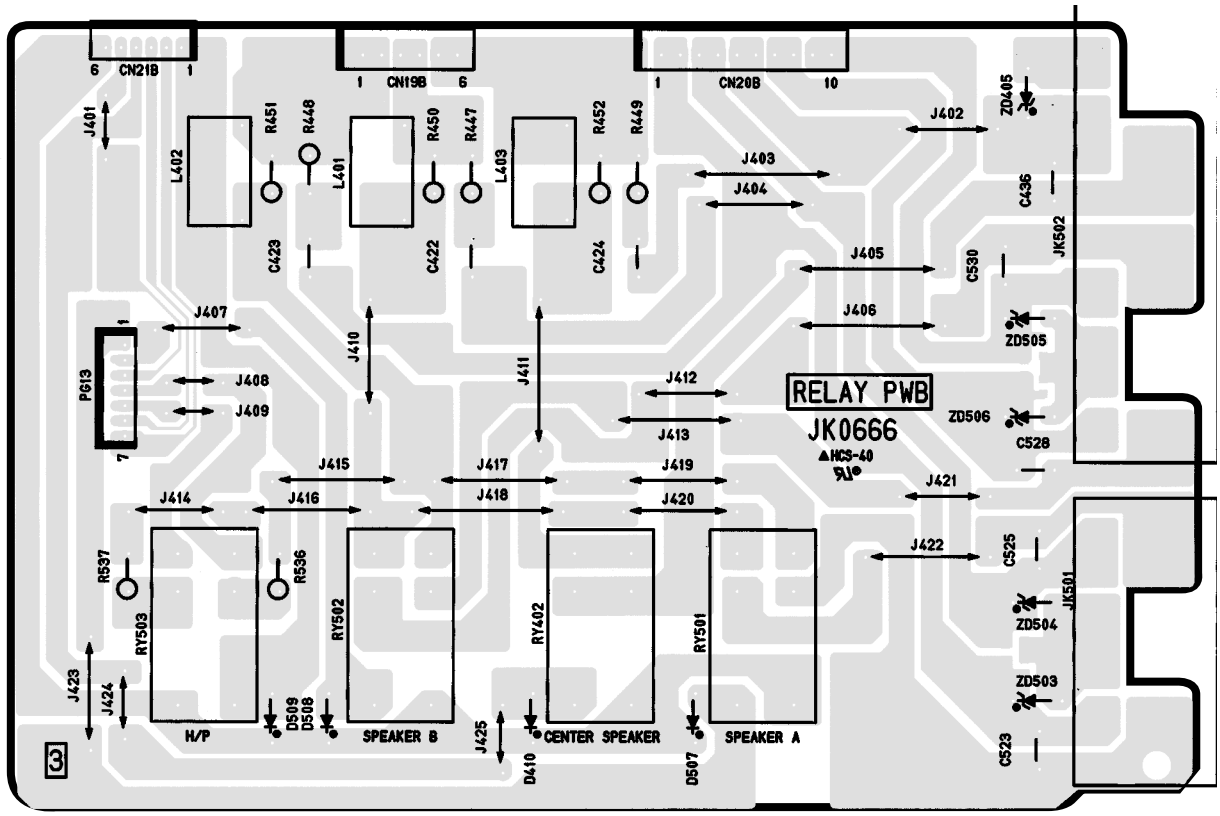


Soldering Side

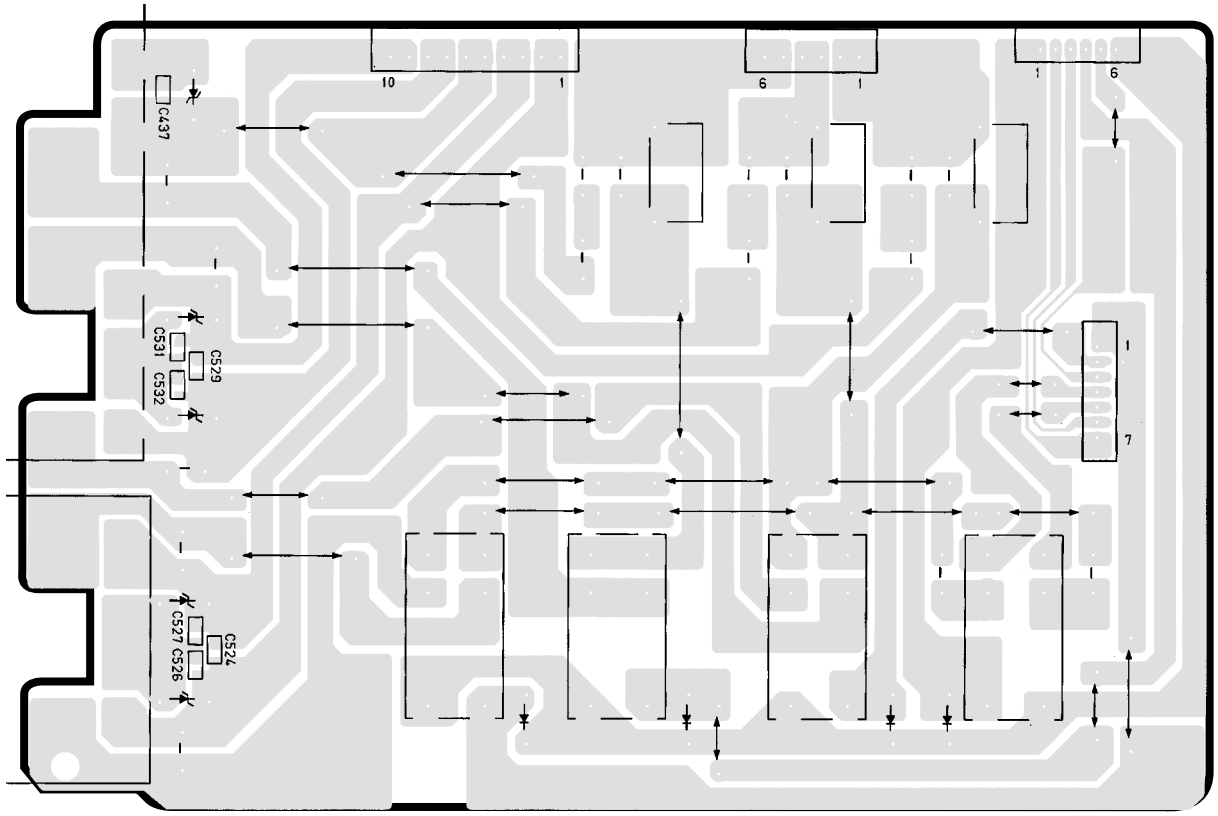


Audio PWB

Component Side

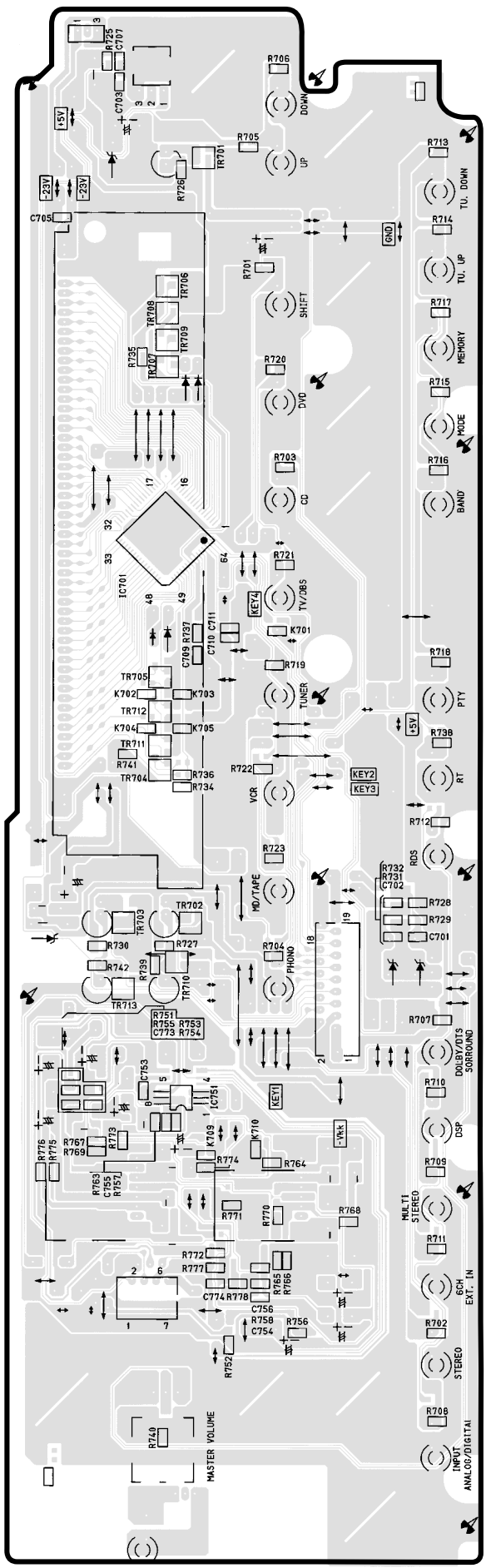


Soldering Side

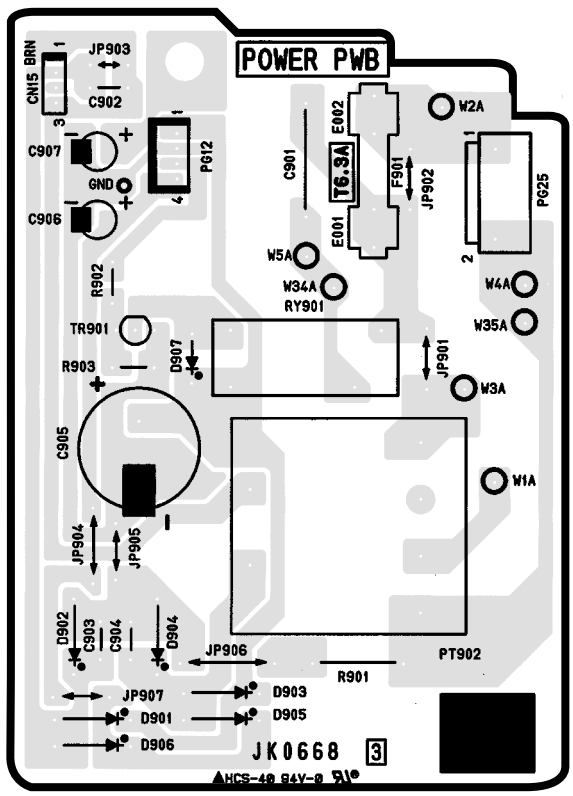


Relay PWB

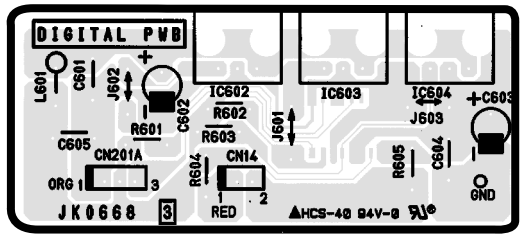
Component Side



FL PWB

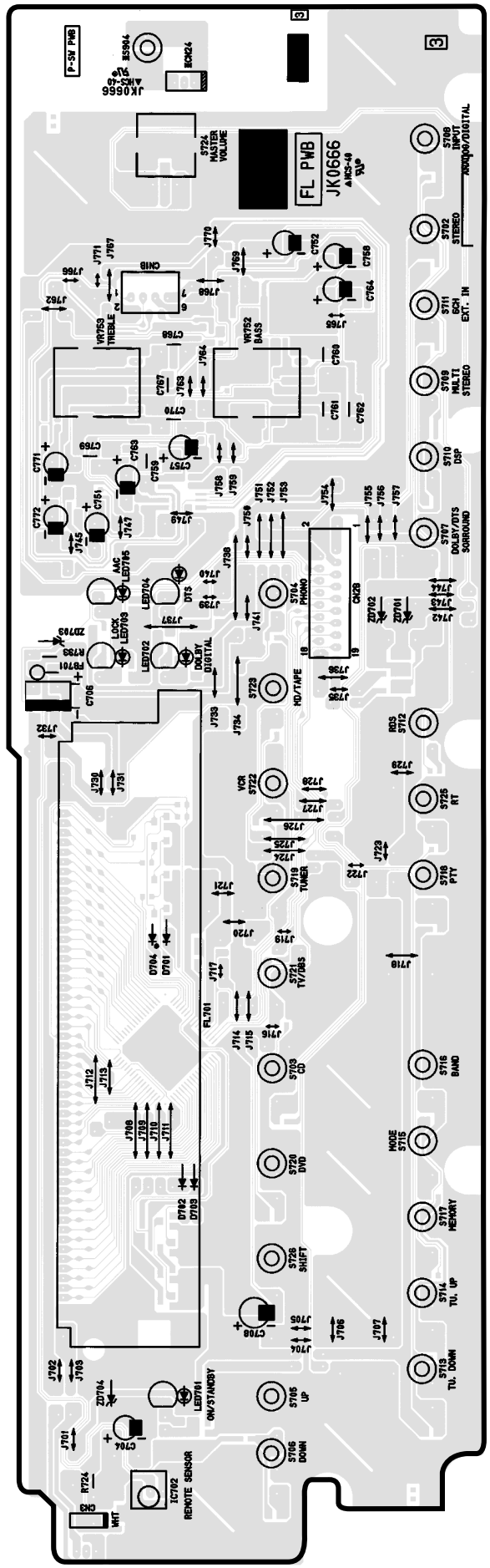


Power PWB

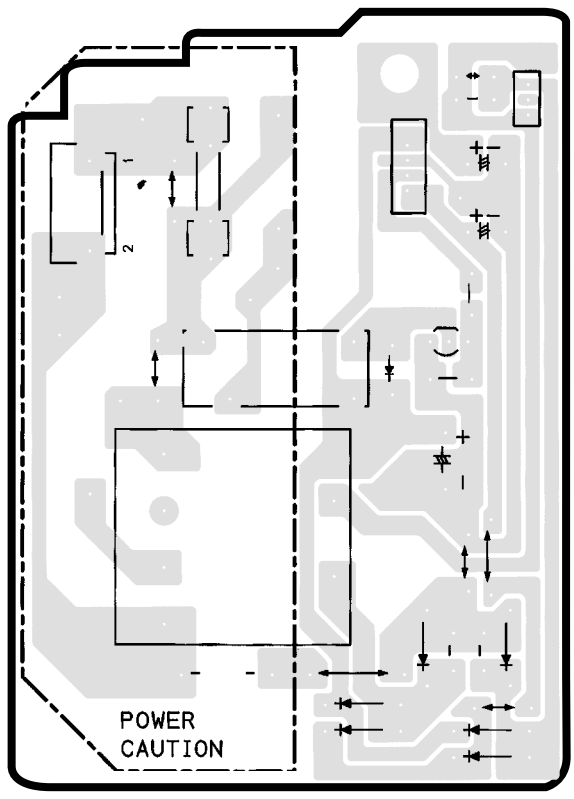


DigitalPWB

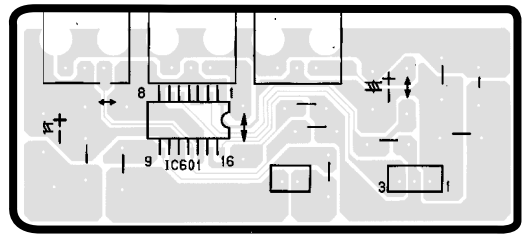
Soldering Side



FL PWB

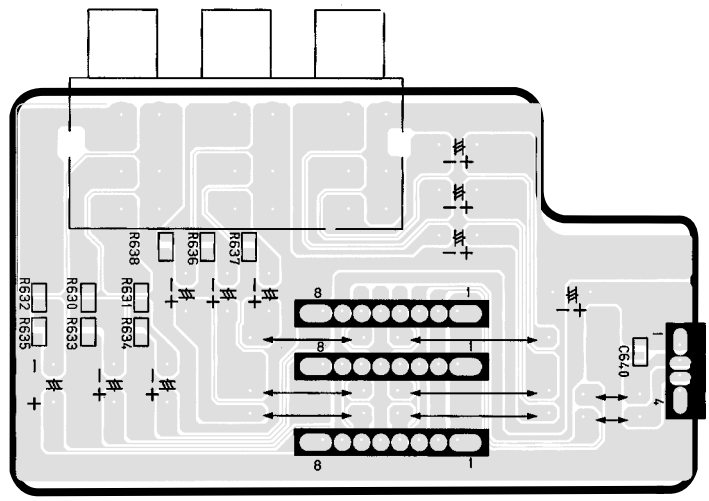


Power PWB

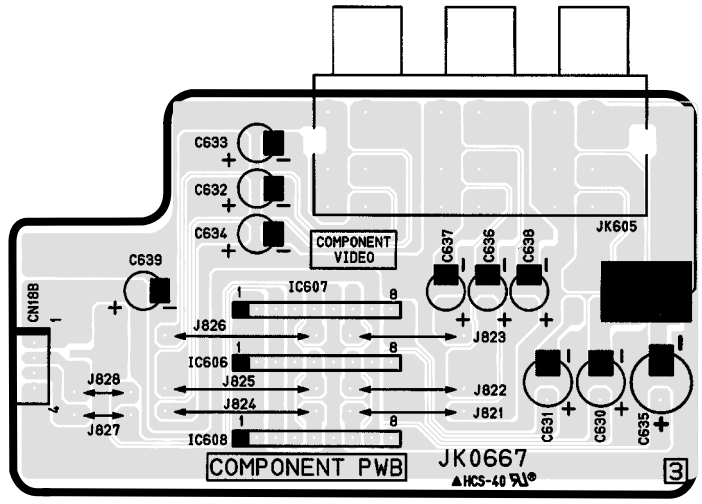


Digital PWB

Soldering Side

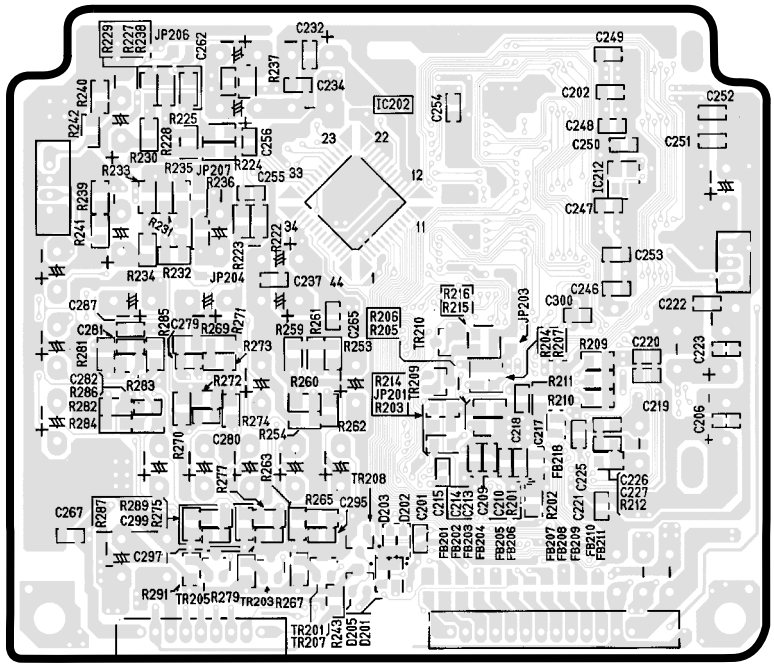


Component Side

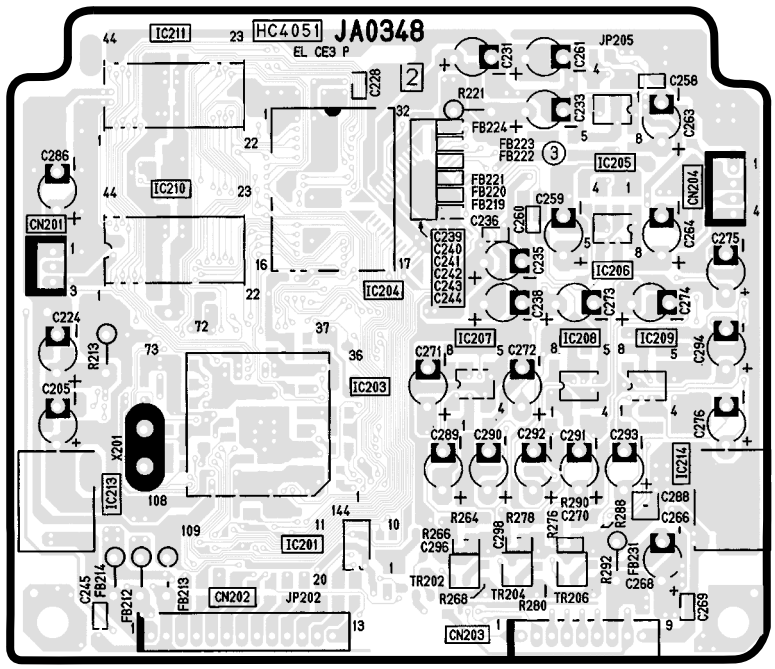


Component PWB

Soldering Side

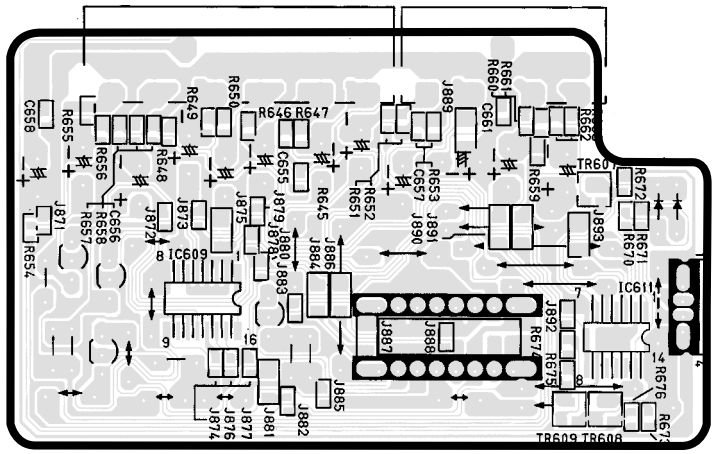


Component Side



DSP PWB

Soldering Side



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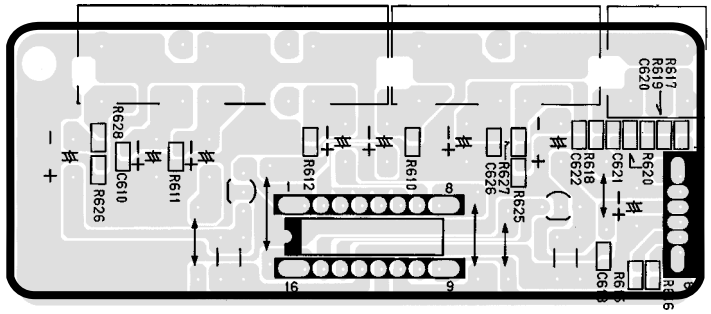
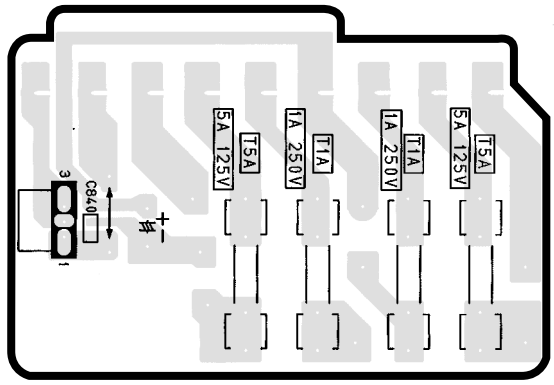
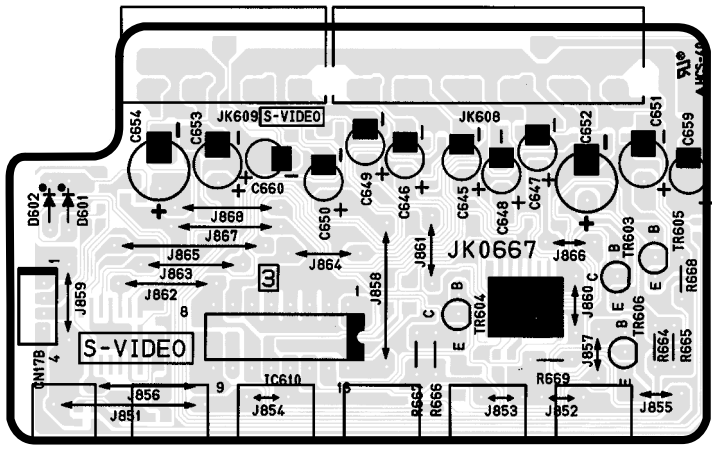


Composit PWB



PT2 PWB

Component Side



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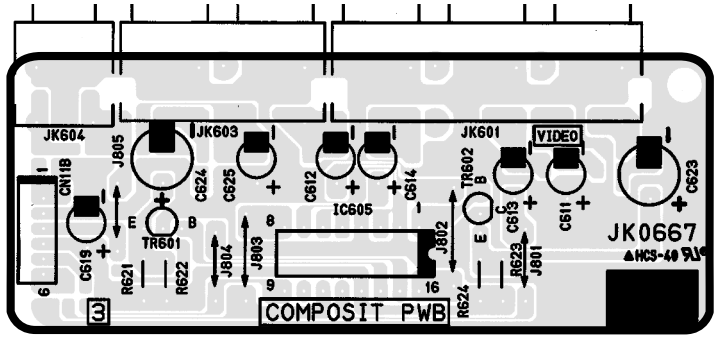
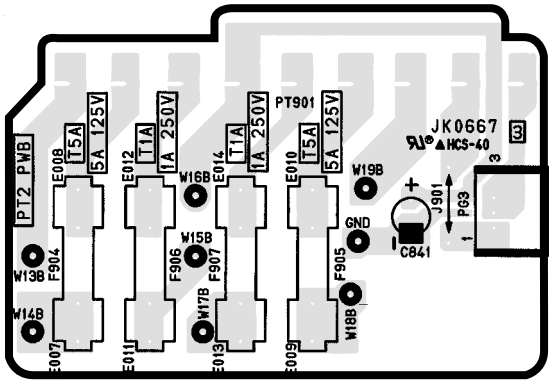
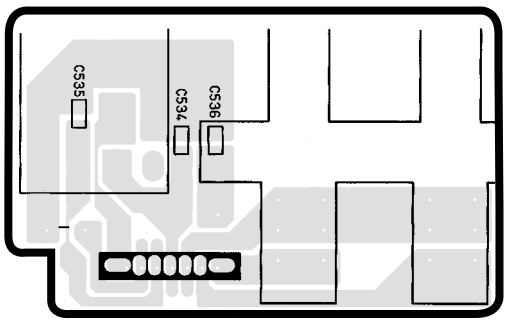


Composit PWB



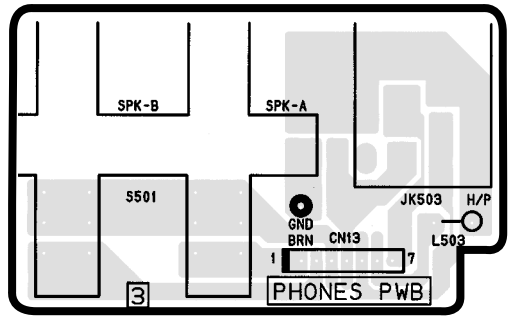
PT2 PWB

Soldering Side

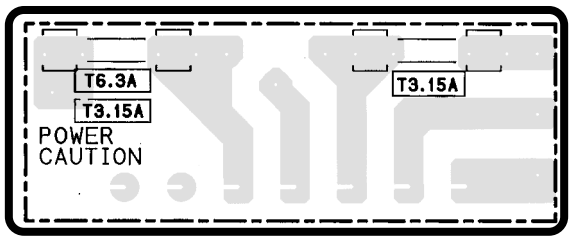


Phone PWB

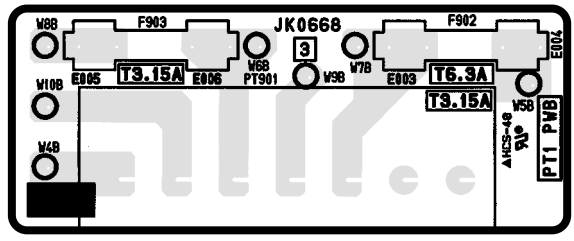
Component Side



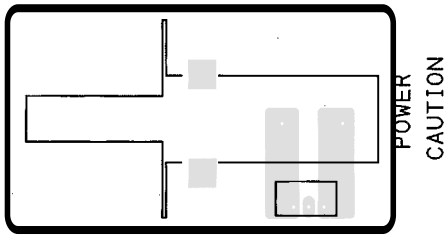
Phone PWB



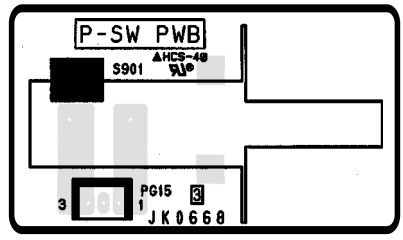
PT1 PWB



PT1 PWB

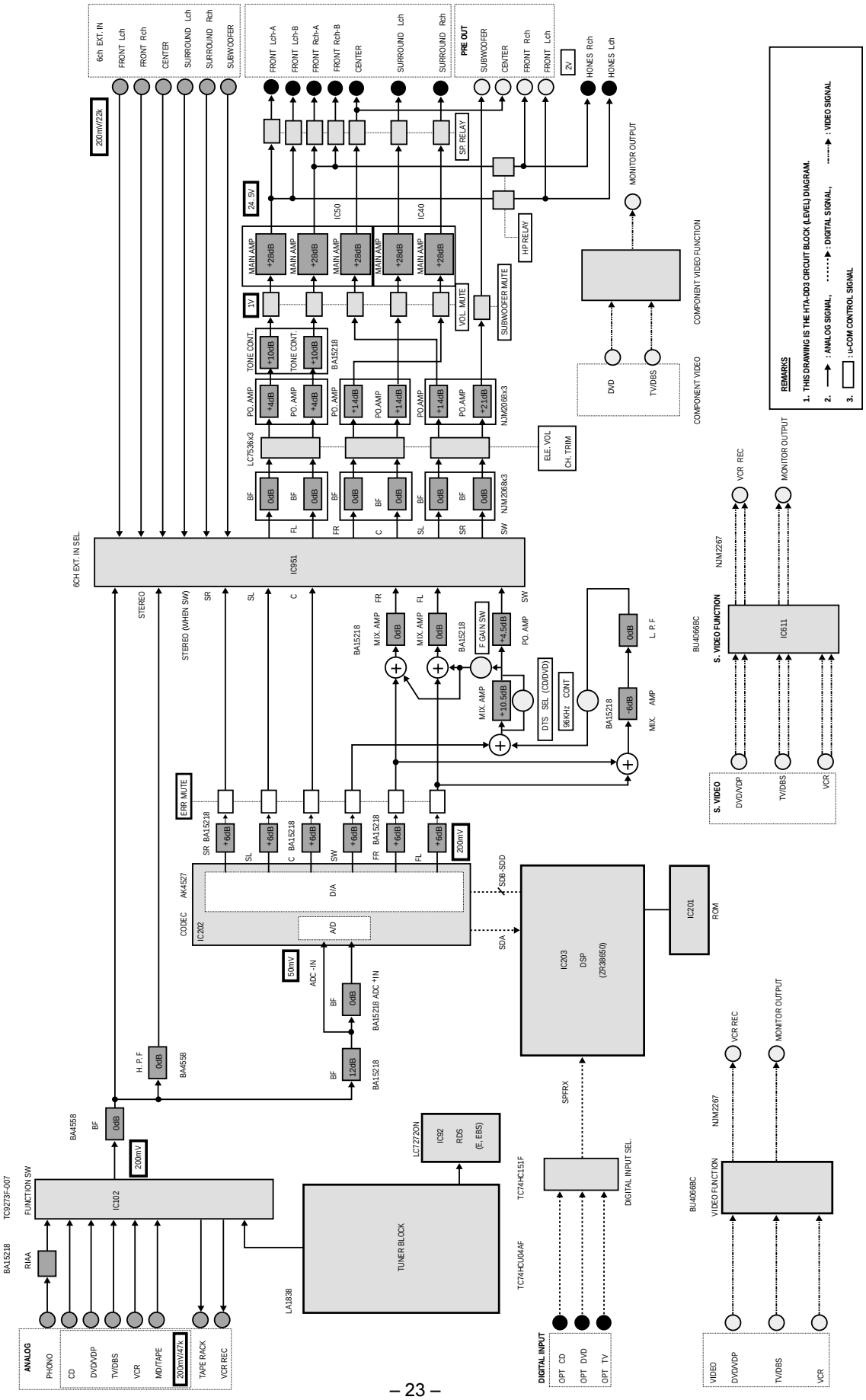


P-SW PWB



P-SW PWB

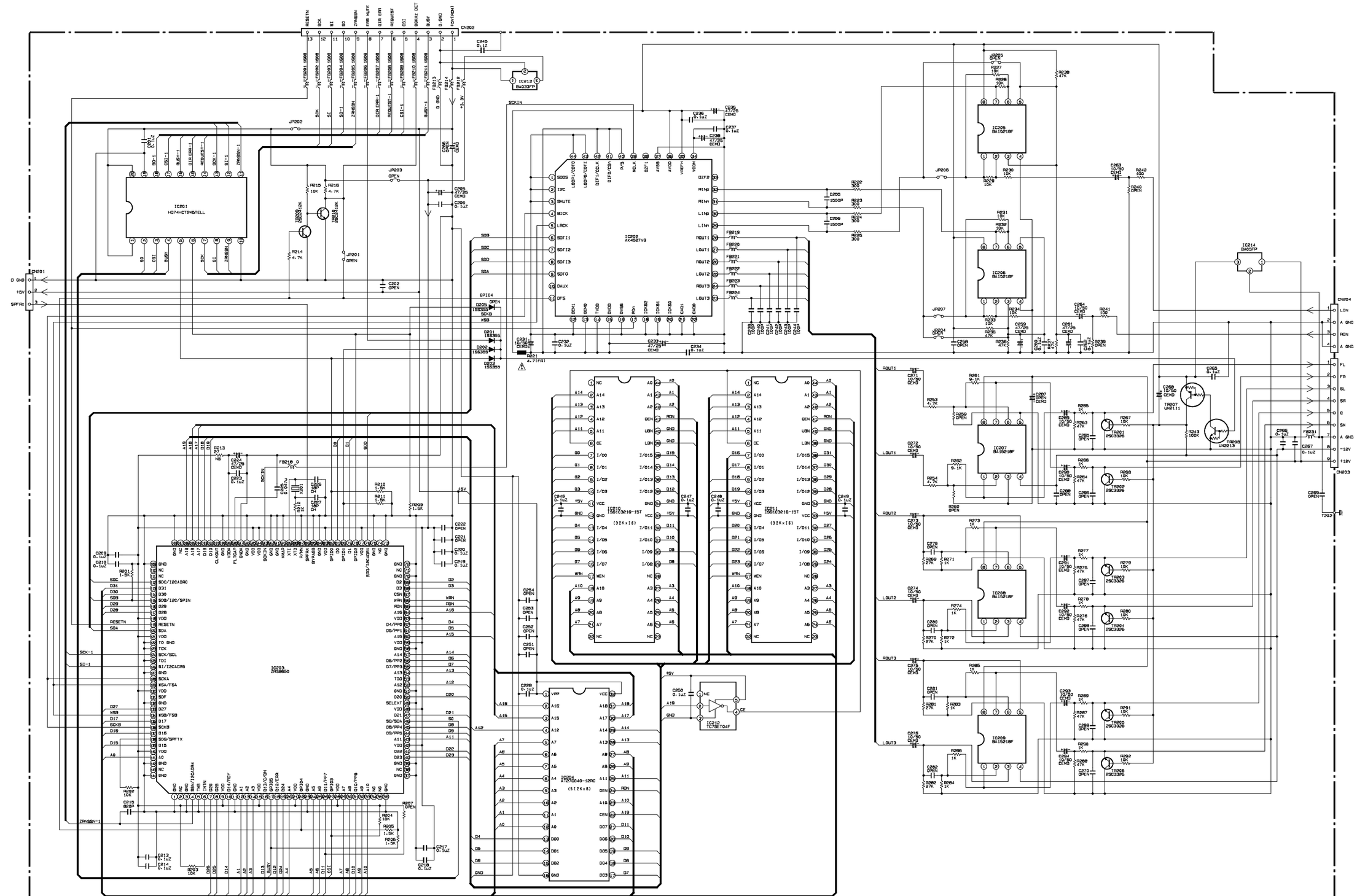
BLOCK DIAGRAM



DEST. \ FUSE	F904	F905	F906	F907
UC	5A 125V	5A 125V	1A 250V	1A 250V
E-KRB	T5A	T5A	T1A	T1A
M-MUN	T5A	T5A	T1A	T1A
J	T5A	T5A	T1A	T5A

MAIN AMP UNIT

	SM0103	MAIN CIRCUIT	HITACHI



SM0103	DSP CIRCUIT	HITACHI

	×7	×8	×9	×10	×11	×12	×14	×15	×16	×17	×18	×19	×20	×21	×22	×23	×25	×26	×27
	R23	R32 R35	C53 C54	R33 R34	C23	R41 R42	CF1	CF2	C20	LF1 C30(560P)	LF2 LF3	TU1	J4-5-6	R22	C61 C62	C55	S1	C71 C72 R345 R347	C9
E/EBS	1.2K	150K	330P	180K	—	4.7K	SFE10.7 MS2-A	SFE10.7 MS2-A	22/50	○	○	4-TUNE	——	39K	0.0047	120P	—	○	○
UC	JUMPER	100K	680P	120K	100P	6.8K	SFE10.7 MA-B	SFE10.7 MS2G-A	——	——	—	3-TUNE	JUMPER	18K	——	——	—	——	○
M/WUN	JUMPER	100K	680P	120K	100P	6.8K	SFE10.7 MA-B	SFE10.7 MS2G-A	——	——	—	3-TUNE	JUMPER	39K	——	——	○	——	——
	JUMPER	100K	680P	120K	100P	6.8K	SFE10.7 MA-B	SFE10.7 MS2G-A	——	——	—	3-TUNE	JUMPER	39K	——	——	○	——	——
L	JUMPER	130K	390P	150K	100P	6.8K	SFE10.7 MA-B	SFE10.7 MS2G-A	——	——	—	3-TUNE	JUMPER	18K	——	——	—	——	○

TUNER PWB

to MAIN

TO DIGITAL PWB

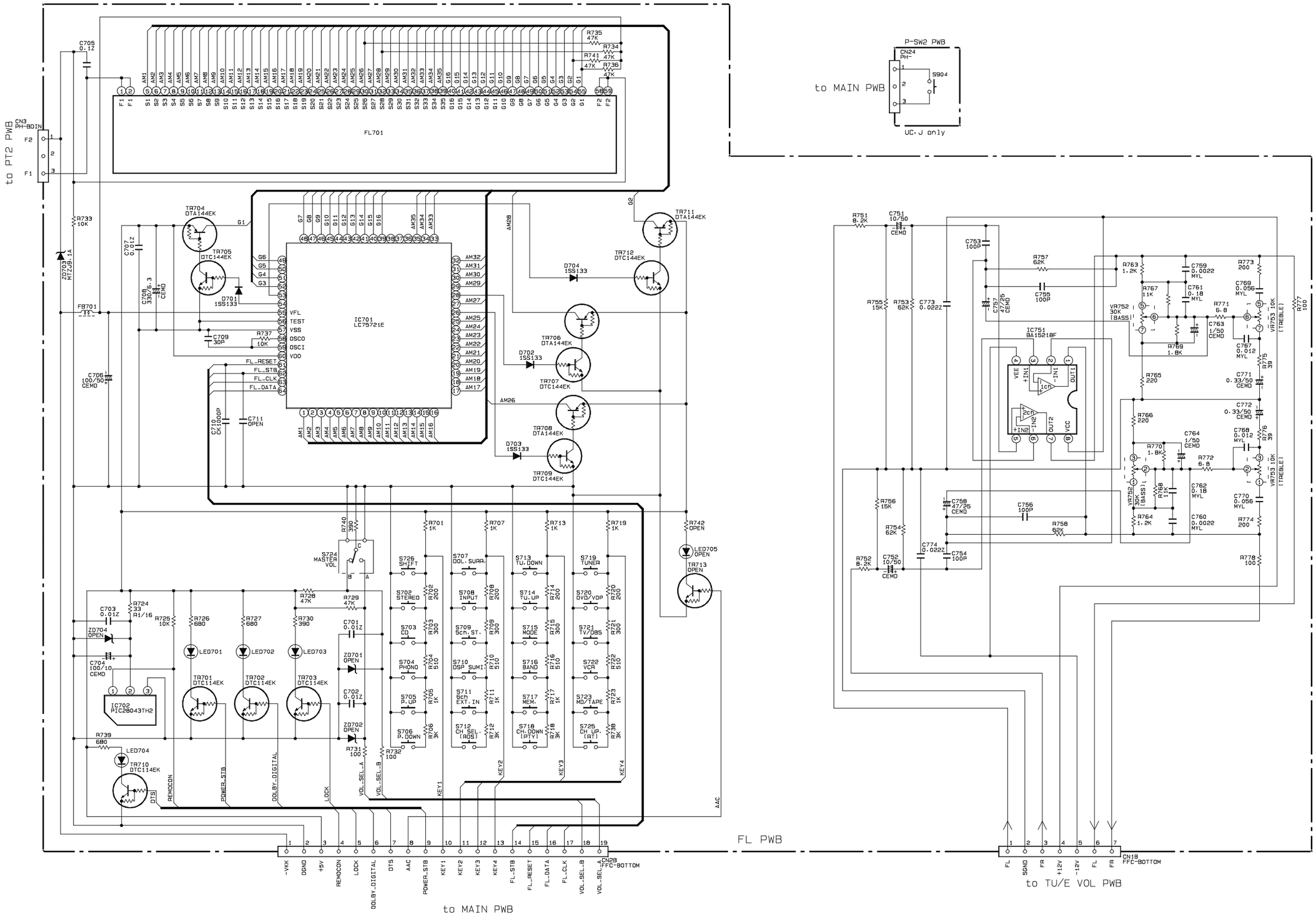
SWITCHING

MUTE

only for E/EBS

to MAIN

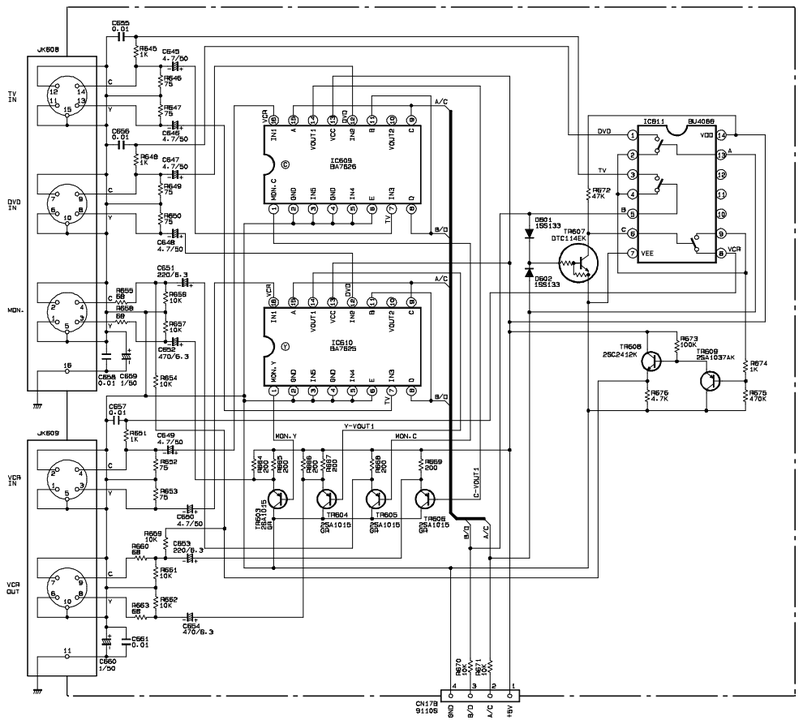
to TONE

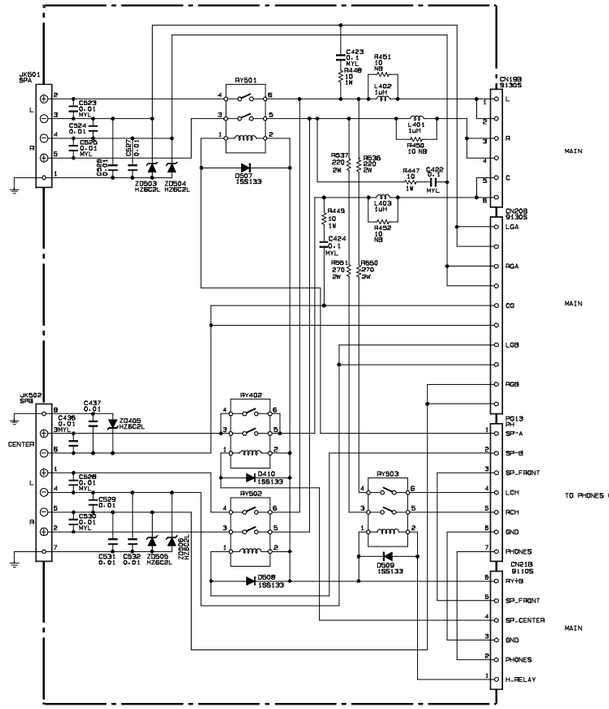


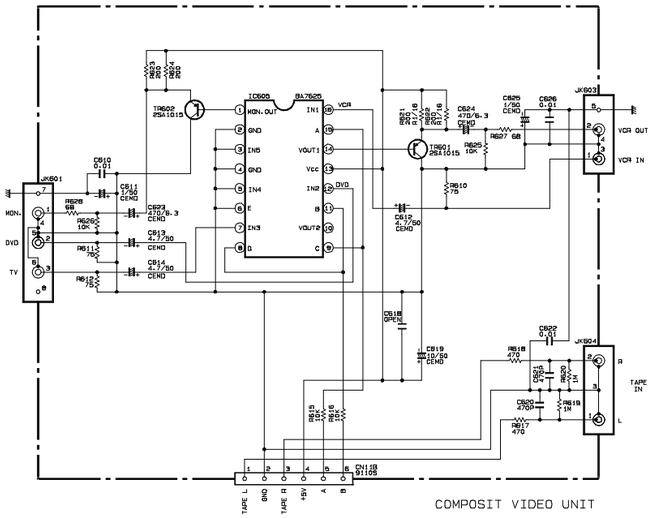
SM0103	FL CIRCUIT	HITACHI

	[※1] J101	[※2] R101 R102	[※3] LF101 LF102	[※4] C121 ~128	[※5] C153 C154
E	—	4.7K	○	330P	220P
UC	○	—	—	—	—
W	○	—	—	—	—
J	○	—	—	—	—

AUDIO INPUT UNIT

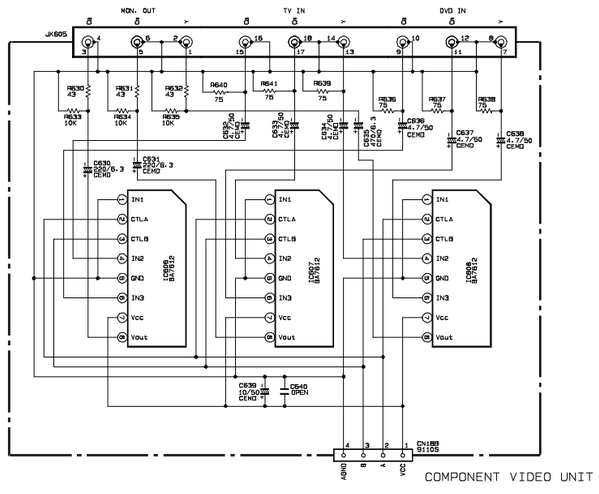




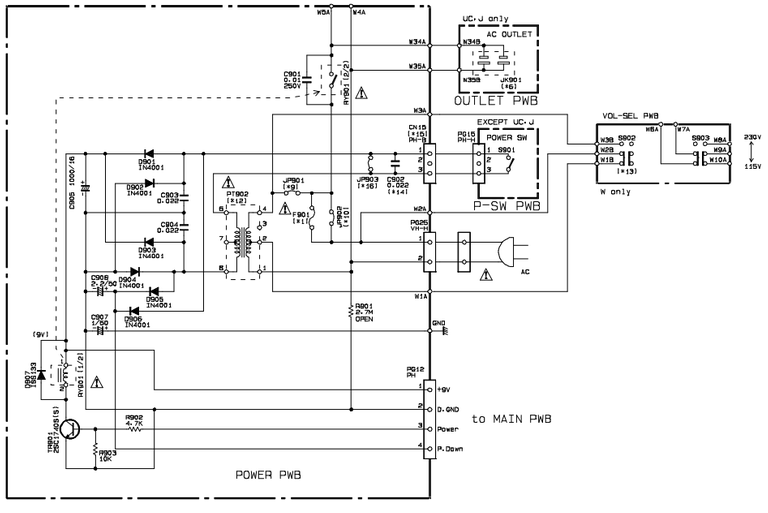


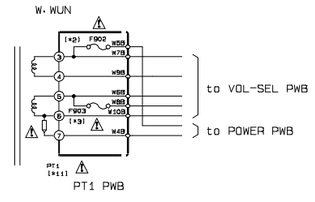
COMPOSIT VIDEO UNIT

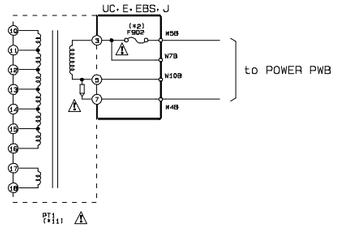
	(*1) F901	(*2) F902	(*3) F903	(*6) JK901	(*8) R901	(*9) JP901	(*10) JP902	(*11) PT1	(*12) PT902	(*13) S902·903	(*14) C902	(*15) CN15	(*16) JP903
UC	T6.3A	T6.3A	—	○	—	○	—	BT01781	BT01412	—	—	—	○
E·EBS·EK	—	T3.15A	—	—	—	○	○	BT01782	BT01413	—	○	○	—
W·WUN·WAU	—	T6.3A	T3.15A	—	—	—	○	BT01783	BT01414	○	○	○	—
J	T6.3A	T6.3A	—	○	—	○	—	BT01784	BT01415	—	—	—	○



COMPONENT VIDEO UNIT

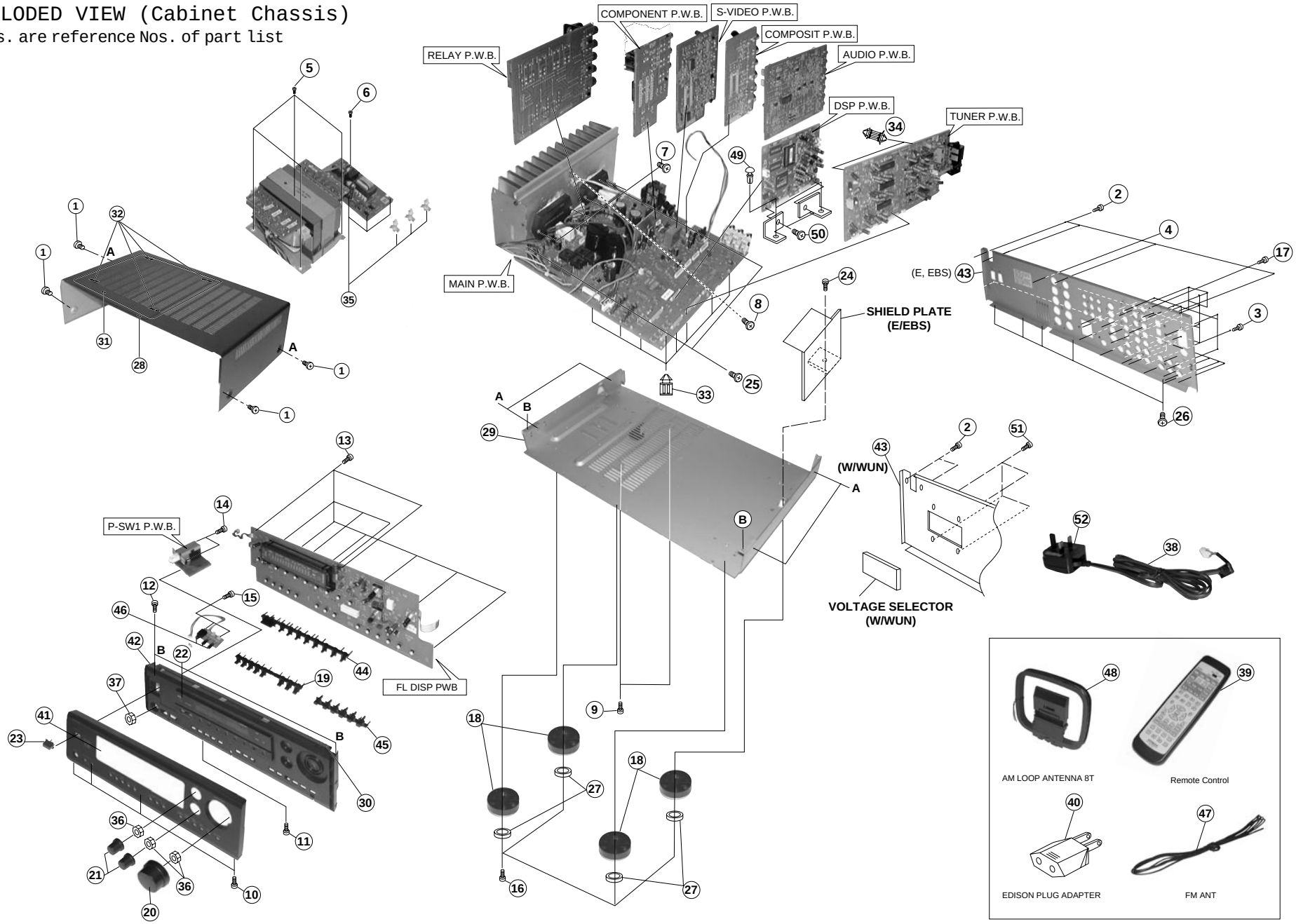






EXPLODED VIEW (Cabinet Chassis)

• Nos. are reference Nos. of part list



THE UPDATED PARTS LIST

FOR THIS MODEL IS

AVAILABLE ON ESTA

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